

List of Publications of C.Z. Ning (2004)

(98 in total, some items appeared under different sections)

A. Nonlinear Optics and Terahertz Generation in Intersubband Transitions in Semiconductor Nanostructures

- J. Li and C.Z. Ning, *Induced transparency by intersubband plasmon coupling in a quantum well*, Phys. Rev. Lett., **93**, 087402(2004)
- C.Z. Ning and J. Li, *Effects of collective excitations and scatterings in quantum well intersubband transitions*, SPIE Proceedings, **5352**, 284(2004)
- J. Li and C.Z. Ning, *Microscopic theory and simulation of quantum well intersubband absorption: a three-subband model*, SPIE Proceedings, **5349**, 95 (2004)
- J. Li and C.Z. Ning, *Effects of electron-electron and electron-phonon scatterings on linewidth of intersubband transitions in a quantum well*, Phys. Rev. B**70**, 125309(2004)
- D. Larrabee, G. Khodaparast, J. Kono, K. Ueda, Y.Nakajima, S.Sasa, M. Inoue, K.Kolokolov, J. Li and C.Z.Ning *Temperature dependence of intersubband transitions in InAs/AlSb quantum wells* , Appl. Phys. Lett., **83**, 3936(2003)
- J. Li and C.Z. Ning, *Interplay of collective excitations in quantum well intersubband resonances*, Phys. Rev. Lett., **91**, 097401(2003)
- J. Li, K. Kolokolov, C.Z. Ning, D. Larrabee, G. Khodaparast, J. Kono, M.Karasaki, K. Ueda, S. Sasa, and M. Inoue, *Microscopic modeling of intersubband resonances in InAs/AlSb quantum wells*, Physica E, **20**, 268(2004)
- J.Li and C.Z. Ning, *Collective excitations in InAs quantum well intersubband transitions*, Physica E **22**, 628(2004)
- J.Li and C.Z. Ning, *Many-body effects on intersubband resonances in narrow InAs/AlSb quantum wells*, Physica E **20**, 264(2004)
- J.Li, K.Kolokolov, and C.Z. Ning, *Microscopic modeling of intersubband optical processes in type-II semiconductor quantum wells: linear absorption*, SPIE Proceedings, **4986**, (2003)
- J. Li, K. Kolokolov, C.Z. Ning, D. Larrabee, G. Khodaparast, J. Kono, M.Karasaki, K. Ueda, S. Sasa, and M. Inoue, *Intersubband transitions in InAs/AlSb quantum wells* (Invited paper), in Progress in Semiconductors II: Electronic and Optoelectronic Applications, MRS Proceedings, **744**, 571 (2003)
- A. Liu and C.Z. Ning, *Difference-frequency generation of terahertz wave and optical gain in Sb-based quantum wells pumped by near-infrared lasers*, in Nonlinear Optics: Materials, Fundamentals, and Applications, OSA Technical Digest (Optical Society of America, Washington DC, 2000), NLO-2000, pp. 56-58.
- A. Liu and C.Z. Ning, *Near-infrared laser pumped intersubband THz laser gain in InGaAs-AlAsSb-InP quantum wells*, Appl. Phys. Lett., **76**, 1984 (2000).
- A. Liu and C.Z. Ning, *Optical control of intersubband absorption in a multiple quantum well-embedded semiconductor microcavity*, SPIE-Proceedings, **3944**, 353(2000).
- A. Liu, S.C. Chuang, and C.Z. Ning, *Piezoelectric Field Enhanced Second Order Optical Nonlinearities in Wurtzite GaN/AlGaN Quantum Wells*, Appl. Phys. Lett., **76**, 333(2000).
- A. Liu and C.Z. Ning, *Exiton Absorption in semiconductor quantum wells driven by a strong intersubband pump field*, J. Opt. Soc. Am. B, **17**, 433 (2000).

- A. Liu and C.Z. Ning, Terahertz optical gain based on intersubband transitions in optically pumped semiconductor quantum wells: Coherent pump-probe interactions, *Appl. Phys. Letts.*, **75**, 1207(1999).

B. Nanophotonics, Nanowires, and Nanolasers

- D. Sibuly, M. Law, P. Pauzauskie, H. Yan, A. Maslov, K. Knutzen, C. Z. Ning, R. Saykally, and P. Yang, *Optical routing with nanoribbons and nanowire assemblies*, submitted to Proc. Nat. Acad. Sci. (USA)
- A.V. Maslov and C.Z. Ning , *Light emission from nanowires into free-space and guided modes*, submitted to J. Opt. Soc. Am. B
- N. Malkova and C.Z. Ning, *Controllable sharp-bent waveguide in 2D photonic crystals*, submitted to Opt. Lett.
- A. V. Maslov and C.Z. Ning, *Modal gain in a semiconductor nanowire laser with anisotropic band structure*, IEEE J. Quant. Electron.,**40**,1389(2004)
- A.V. Maslov and C.Z. Ning, *Modal properties of semiconductor nanowires for laser applications*, SPIE Proceedings, **5349**, 24 (2004)
- A.V. Maslov and C.Z. Ning, *Far-field emission from a semiconductor nanowire laser* , Opt. Lett. **29**, 572(2004)
- A.V. Maslov and C.Z. Ning, *Reflection of guided modes in a semiconductor nanowire laser*, Appl. Phys. Lett. **83**, 1237(2003)

C. Modeling and Simulation of Semiconductor Lasers

- P.M. Goorjian and C.Z. Ning, *Ultrafast beam self-switching by using coupled vertical-cavity surface-emitting lasers*, J. Modern Optics, **49**,707(2002).
- C.Z. Ning, *Self-sustained ultrafast pulsation in coupled VCSELs*, Optics Lett, **27**, 912(2002).
- C.Z. Ning, *Ultrafast narrow bandwidth modulation of VCSELs*, SPIE-Proceedings, 4646, (2002).
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- P.M. Goorjian, C.Z. Ning, and G.P. Agrawal, *Transverse mode dynamics of VCSELs undergoing current modulation*, SPIE-Proceedings, Vol. 3944, pp. 284-291 (2000).
- C.Z. Ning and P.M. Goorjian, *Microscopic modeling and simulation of transverse-mode dynamics of vertical-cavity-surface emitting lasers*, in Special Issue on Spatial and Polarization Dynamics of Semiconductor Lasers, J. Opt. Soc. Am., B, Nov. 1999.

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- P.M. Goorjian and C.Z. Ning, *Transverse Mode Dynamics of VCSELs through Space-Time Simulations*, SPIE-Proceedings, Vol. 3625, pp. 395-401 (1999), P. Blood et al., Eds..
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- C.Z. Ning, *Validity of the relation between Spontaneous and Stimulated Emissions in Semiconductors*, SPIE-Proceedings, Vol. 3625, pp. 622-632(1999)
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E. Hot Carrier and Thermal Effects in Optoelectronic Devices

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F. Carrier Diffusions and Transport in Semiconductors Optical Devices

- C.Z. Ning and J. Li, *Many-Body Effects in a Laterally Inhomogeneous Semiconductor Quantum Well*, Phys. Rev. B, Rapid Communication, 65,201305(R), (2002).
- J. Li and C.Z. Ning, *A Hydrodynamic Theory for Spatially Inhomogeneous Semiconductor Lasers: I. Microscopic Approach*, Phys. Rev. A. 66,023802(2002)
- J. Li and C.Z. Ning, *A Hydrodynamic Theory for Spatially Inhomogeneous Semiconductor Lasers: II. Numerical Results*, Phys. Rev. A., 66,023803(2002)
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G. Nonlinear Dynamics and Laser Instabilities

- C.Z. Ning and H. Haken, *Eliminations of variables in simple laser equations*, Appl. Phys. 55 B, 117 (1992)
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- (See also the “Geometric Phase” Section for further related papers)

H. Geometric (Berry's) Phase in Nonlinear Dissipative Systems and Laser Phase Dynamics

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I. Two-Photon Lasers

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J. Noise and Stochastic Resonance

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K. Inverse Problem

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